1: Spier E-5 (1918) 1928
NT14 Plateau Yumans NT14
Havasupai

away and the seeds scraped out and collected. After further drying, the flesh is sliced spirally from side to side, beginning at the stem end, in a strip 2.5 to 5 cm. in width. This coil, 1 to 1.5 m. long, is hung from a pole to dry in the sun. While it is still pliable, it is folded back and forth on itself into a bundle (*hamtsbut'ñst*), 30 to 45 cm. long, and bound with one end of the strip. This is set aside to dry thoroughly before it is placed in the storehouse for winter use. Squash so dried will keep through an entire year. Melons are also grown. 257

Sunflowers (*ak'ñtá*) are grown for their seed. Cotton (*Gossypium hopi* Lewton) is raised from seed obtained from the Hopi; the only use for this product is in the strike-a-light. The seeds of wild food plants are not planted; some, such as pigweed, grow in the fields. Peaches and figs, modern foodstuffs, are eaten fresh. Peaches are also torn in two and pitted, while figs are opened, before they are spread on the rocks to dry. [241] [244] [272] [251]

Two varieties of tobacco are known, *ûnt*, and *kñtá'da,ha'wa* (Coyote's tobacco; *Nicotiana trigonophylla* Dunal). Myth has it that the second was grown by Coyote for his own use. Both grow wild on the plateau and in the canyon above the village: their leaves are similar, but the smoke tastes somewhat differently, according to the natives. Tobacco (both varieties?) is grown only on the plateau. A mesquite tree is cut down and burned. The tobacco seeds are thrown into the dead ashes (the soil is not dug up). Willow is not used as a substitute. 249

Wild Food Products

These are a valuable adjunct to the food supply, especially from the autumn until spring during the residence on the plateau. During this period they lead a wandering life, families going off in the fall to a place where someone had reported piñon nuts lying plentifully on the ground; winter finds them to the east, hunting in the Coconino Basin, dropping down to the benches of the Grand Canyon in the spring for mescal, and so on. Women and children are sometimes left to gather seeds while the men go off to trade. 221 222 [462]

Mescal (the agave plant), which grows on the canyon benches, is ripe in May when the flower stalk is 30 to 60 cm. tall. The plant is severed entire by pounding a chisel-shaped buckthorn stick (*ñp'a'n*) about 1 m. long, 3 cm. diameter, against its base. The outside leaves of the inverted plant are trimmed of their green portion with a special hatchet (*ñgwidjá*). This consists of a broad stone blade set in a slot midway in the length of a short handle, 30 cm. long, (sometimes of piñon wood), where it is held fast with glue or pitch and by lashings. A load of [442] 252 [412]

1:Spier E-5 (1918) 1928
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thirty or forty plants is carried home. A pit (*mañpóma"a; émdi*, ground) 1.8 m. in diameter, but of a lesser depth, is dug in sandy soil, not in gravel, else the stream would escape. Green or dry brush of any description is piled into the hole to the height of a meter above the ground; the uppermost brush must be dry. Stones the size of one's fist are spread over this to a depth of 10 cm. The pile is fired early in the morning, before sunrise. After three or four hours, when the wood is nearly consumed and the stones are red hot, several men (not women, because of danger from the flames) pound on the pile to reduce it level with the surface of the ground (?). Meanwhile women pile the mescal all around the pit to have it conveniently at hand. The pit is apportioned in sectors among several people; when the mescal is put in it, some plants are stood on edge to mark these divisions, the others are then packed indiscriminatingly in between. Long green grass, gathered by the women at the time the fire was started, is first carefully arranged over the plants, and then piled in to a depth of 3 cm. This is then covered with a layer of dirt, 15 cm. deep. It is now 8 or 9 a.m., depending on the quantity of plants. Forty-eight hours later the pit is opened, and grass spread over a convenient space to receive the roasted mescal.

Mescal paint (p. 197) is made from the dried juice which coats the stones. (The plants of the lowest layer have been burned black.) These stones are boiled for a few minutes to remove the sediment: the liquor is poured off and boiled until it thickens; then red paint is stirred in to thicken it further. After boiling longer the paint is reduced to a doughy consistency; the small quantity obtained is rolled into a ball.

The leaves of the roasted mescal may either be chewed at once to obtain the pulp and juice, or they may be mashed and spread in a thin layer on an arrow reed mat to dry. When half dried the fibrous layer is turned over to dry further. While it is still flexible, one edge is folded back and the opposite edge folded over to meet the crease. This preparation (*ova'i*) will keep indefinitely; it is soaked in cold water for an hour to make a sweet drink.

Arrow reed mats (*ilakwiné; ilá"*, arrow reed) measure 110 by 80 cm. and 73 by 60 cm., the first dimension being the length of the reeds. Thongs or sinews are twined through the reeds at half a dozen points. Mescal and yucca products, peaches and figs, are spread to dry on such mats.

The leaves of the young plantain (*'ol'i'ei*) are boiled and served as we do cabbage.

The fruit (*hatá'a*) of the prickly pear cactus (*álási*) ripens at the same time as peaches (September). The spiny fruits are broken off

1: Spier E-5 (1918) 1928
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with tongs, rolled about on the ground with a bundle of brush, and finally rubbed individually with a rag to remove the spines completely. A burden basket full is carried home, the fruits spread and spread out to dry; sometimes the seeds are removed. When drained these are soaked for a few hours and spread to make a sweet dry onion.

Mormon tea furnishes a drink: the stems are dried in bundles.

Mesquite pods (*ipd'a*) are ripe at the end of September. There is but one way to prepare them. They are gathered when dry and pounded on the grinding slab. The excessively hard seeds are winnowed from the ground pod. The latter is stirred into cold water and allowed to stand for several hours. This drink is stirred before it is imbibed. The pods, being sweet when dry, are often chewed at odd times.

Yucca fruit (*ámdad'l*) ripens on the plateau at the end of September. A layer of this is spread on a bed of dry sticks, a meter in diameter. The sticks are fired until the rind of the fruit is burned black, when they are removed with the tongs (*aitsis'*), and thrown into a pile, on which water is sprinkled. The burned rind is removed, and the seeds, separated from the pulp, prepared by mashing with a mano. The flesh is spread to dry in a layer, 1 cm. thick, on a carpet of Mormon tea sprigs: this sheet is folded for storage. All drying fruits will spoil if exposed to rain. This preparation will keep for half a year. Bits of the sheet are broken off to eat dry, or they may be boiled.

A variety of seeds are gathered: a partial list includes pigweed (*ágwaiad*); goosefoot (*hiripáhij*); *ollí''l*, *gáhá*, *('íhá* (all three unidentified); juniper berries (*ádjaqt*), and pinon nuts. Sprays of ripe pigweed and goosefoot are allowed to dry for a week; the pods are then rubbed between the palms into a tray basket so that the seeds may be winnowed. These are roasted in the parching tray and ground. Half a kettle of water is brought nearly to a boil and the meal stirred in to make a mush. Pigweed leaves are boiled with salt, sometimes with cornmeal added, and eaten like cabbage.

Sill''l grows only in open glades on the highest part of the plateau. The harvester walks along with a small burden basket in her left hand into which she rubs the seeds with a seed beater (*sill'ávas; dras*, to beat), emptying the smaller into a larger burden basket on her back from time to time. The seeds are ground, although they are unripe, and stirred into boiling water to make a thin gruel. They are sometimes parched, ground, and eaten dry with bread.

The seed beater is used only in this connection. It is a flat scoop of wickerwork (Fig. 3). The warps are doubled at their midpoints: at 4/2

1:Spier E-5 (1918) 1928
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intervals twigs arcuate those which are bent down the sides of the scoop to the handle, where all the loose ends are bound together. While the specimen at hand has a thong drawing the tip toward the handle, it is probable that this was intended to hold the beater in shape only until the green twigs dried.

Gravic records that besides mescal, juniper berries were eaten.[1] Pinon nuts, which ripen in October, are parched and ground (without removing the shells); the ground meat is spread on bread. The nuts may also be ground without parching and stirred into boiling water to make a thin gruel.

Fig. 3 (30.2-1278). A food Beater.

Wild bees hive in dead logs and the flower stalks of dead mescal. Parties of children go out, picnic fashion, to gather the stalks, split them, and collect the honey. Rock salt (SW'l) is collected from a cave in the cliff on the south side of the Colorado, where there are stalactites of it. This is ground. Much less than we are accustomed to is used.

Hunting

Hunting is a man's second occupation, for he relies mainly on his field products. Flesh is part of the dietary the year around, but particularly during the fall and winter when they reside on the plateau. Antelope, mountain sheep, and deer are said to abound in the order named, while cotton-tails, jack-rabbits, and squirrels are plentiful. Hunting in the gorges of the Grand Canyon is really a hazardous enterprise. One instance was recorded of a wounded ram charging his pursuer and hurling him from a narrow ledge. Yet killings are sometimes tame affairs: one man standing at the door of his house shot a mountain sheep but a hundred meters away. They frequently descend the canyon close to the village.

[1] Gravic, MS.

1: Spier E-5 (1918) 1928
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transversely at the end of a shaft. The Havasupai use a horn scapula but without hafting it.[1]

Cotton is raised by the Hopi, Tewa (except possibly Picuris and Taos), Pima, Mariopa, Western Apache, and Tepehuane. It is not grown by the Navaho, Zuñi, Acoma, or the Tanoan Pueblos.[2]

Tobacco is widely used in North America though it is not everywhere grown. In the Southwest and the adjacent territories its cultivation has been noted for the Zuñi, Hopi, Navaho, Havasupai, Yavapai, San Carlos, Pima, Southern Diegueño, and the Mayos of Mexico.[3] Smoking is known to have been customary among neighboring tribes, who did not raise the plant: Cocopa, Akwa'ala, Mojave, Chemehuevi, Paviotso, Washo, Wind River Shoshoni,[4] and generally in California. The Havasupai habit of planting in ashes without turning the soil is also the custom of the Hopi.[5]

Unfortunately, I do not know which species the common Havasupai tobacco is. Its name, *tóo*, however, is connected with Southern Diegueño *tup* (*Nicotiana attenuata*), Shasta *áp*, Tubatulabal *ó'p'*, Chemehuevi *tup* (*N. multivalvis*), Hidatsa *ó'pa* (*N. quadrivalvis*), probably Washo *pitakur*, and possibly Pima *stupul stuñi*, "like tobacco" (*N. trigonophylla*).[6] There is a similar extension of the name "Coyote's tobacco" though again to distinct species: Havasupai (*N. trigonophylla*), Southern Diegueño (*N. attenuata*), and Pima (*N. Bigelovii*).

Mescal (agave) is gathered and roasted in pits by most, if not all, the pre-Pueblo peoples and perhaps by the Pueblo and Mexican tribes as well. It is an item of some importance for the Jicarilla, Mescalero, White Mountain and San Carlos Apache, Navaho, Havasupai, Paiute, Yavapai, Pima, Cahuilla, and Huichol.[7] It would be worth knowing how far this distribution corresponds with that of the plant. Pit roasting is probably absent from the Basin and the Plains, and from California except among the southern desert tribes. But much farther north, in the Plateau and adjacent sections of the Northwest Coast, it is the characteristic mode of preparing roots. The several cabbages are probably always pried off with a chisel-edged stick (Havasupai, White Mountain Apache, and Pima) and trimmed with the peculiar hatchet (Havasupai,

[1] Castetter, (d), Pt. III, 204; Russell, (d), 96, 97; Francisco Pachuca, 264-6. Makers specimens in the Anthropological Museum, University of California.
Spier, (f), 88.
[2] Mitchell: Curtis (XII, 98) denies that the Hopi plant tobacco. Castetter, 220; Russell, (d), 119; Spier, (e), 248; Shoemaker, (a), 68; Goldfrank, (c), 368.
[3] Lowie (b), 214; Kroeber, (a), 396.
[4] Goldfrank, (a), 27.
[5] Lowie, (f), 198. Washo name from Hunter Lowie, 1926.
[6] Goldfrank, (a), 146-148; Curtis, I, 17-19; Palmer, 647; Castetter, 227; Russell, (d), 70; Harrington, Lumholtz, (a), 12.

1:Spier E-5 (1918) 1928
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White Mountain and San Carlos Apache). Like the Havasupai, the Yavapai and White Mountain Apache dry it in large cakes on a layer of sticks and make a concoction of the dried product.

The method of harvesting wild seeds by beating them with a scoop into a basket held in the free hand is characteristic of the Basin tribes and those in adjacent California and Arizona. A woven seed-beater is used by the Kaibab Paiute, Panamint, Paviotso, Gosiute, Ute, Northern Maidu, Klamath, Modoc, Achomawi, Atsugewi, and Cahuilla. The Northern Shoshoni and Salinan substitute tray baskets for these; the Western Apache and sometimes the Salinan a stick. The Yavapai also gather the seeds in the characteristic manner.[1] There are differences in the shape and technique of the beater which would repay investigation.

A number of tribes share a definite procedure prior to a deer hunt which corresponds to the Havasupai meeting at a fire and praying to the sun. The Huichol obtain power from a fire on the evening before the hunt; Luiseño hunters stand in the smoke to be freed of the effects of any breach of social observance. The Maidu meet at a fire to offer to the spirits; the Achomawi and Atsugewi have a ceremony in the evening of the first day of the hunt at which the leader chews roots which he throws toward the mountains. Bourke states that the Paiute and Walapai (but not the Mohave) sing and dance before a deer hunt, but he does not specify the procedure. There is at least a partial analogy in the Western Apache sprinkling pollen and praying to the sun.[2] The Tepecano and Hasinai also have special observances.[3]

The Havasupai also hold continence a prerequisite for success in the hunt. This is true of the Huichol, Paiute, Walapai, Maidu, and is at least suggested by the Luiseño data. It may be general.

I do not know that the deer drive of the Havasupai constitutes a definite type. Driving them into a *cul de sac* or over a cliff may be very common. It has been noted for the Navaho, Yavapai, Maidu, and Gosiute.[4] The chute-and-pound method is widely distributed over the Basin-Plateau and Plains, but is unknown to the Havasupai.

The use of a deer head, or that of an antelope or mountain sheep, as a disguise in stalking is a rather widespread practice. In the west it is recorded among the Mimbreños Apache, Navaho, Zuñi, Hopi, Havasupai,

[1] Powell, 1880; Corbin, 233; Lewis, (1), 234; Chamberlin, 241; Mason, O. T., (2), 639; Dixon (2), 160; (3), 215; Barrett, (1), 227; Kroeber, (2), 45; Lowie, (2), 167; Mason, J. A., (2), 156, 161; Bourke, (2), 152; Carbonell, 328.

[2] Lumholtz, (1), II, 60, 61; Spier, 190; Dixon, (2), 160; (3), 215; Bourke, (2), 178; (3), 202, 204; (4), 638.

[3] Mason, J. A., (4), 120; Robles.

[4] Kroeber, 227; Powers on Pomo, 473; Matthews, (2), 220; Carbonell, 330; Dixon, (2), 162; Chamberlin, (2), 215.

Bliff Y-S (ca.1901) 1964 NT14 Plateau Yumans NT14
Havasupai

These Indians apparently had no knowledge of peyote. There was no intoxicating liquor of any kind on the reservation. I was beginning to realize that, on the surface, life in this canyon might be like living among children, except when savage tempers were aroused—and then? Well, I had asked for adventure.

I still did not know what to write in that annual report.

The school session had been interrupted by the departure of the former superintendent. Vacation, at this school, came in the fall, when the entire tribe made an exodus to the mesa to hunt game and to gather wild seeds and plants, so I planned to open school on Monday morning, asking Vesnor to notify the people in the village. The following Saturday I would be free to take a census of the tribe and determine the acreage under cultivation. So far, I had no basis whatever from which to work out the report Mr. Ewing wanted. But by verifying the statement of a former teacher that there were two hundred fifty Indians in the tribe and three hundred fifty acres in gardens and orchards, I could incorporate his figures in my report to Washington.

Even in summer, the sun did not rise in our part of the canyon until after nine o'clock, so it was still gloomy and damp when I crossed the grounds to the school building Monday morning. The school plant stood at the head of the stream, the dividing line between the upper, desert end of the canyon and the lower section, a jungle of greenness. Immediately behind our schoolhouse stood a column of stone about three hundred feet high, partly detached from the wall by rain and frost. If it fell, it would bury the schoolhouse beneath tons of rock. The danger seemed imminent as I gazed at the upper end of the column, standing straight and free. Later, I learned that such columns topple over only after a flood.

I had rung the warning bell, and it was time for school, but no children had appeared. Then the bushes parted violently and dozens of little Indians burst through on the run. Behind them, maneuvering his well-trained pony with all the skill of a cattleman rounding up strays, rode Vesnor. The older pupils followed more

Bailiff T-5 (ca. 1901) 1954 NT14 Plateau Tumaco NT14
Havasupai

they had wood to sell. They needed the wild seeds, fruits and roots 221
that grew on top, they insisted. But, when I saw their childish delight as they made their departure, ponies loaded with cumbersome bundles, I knew that they were motivated by the very human desire for change, to get outside, where they could look about, with the full sweep of the vaulted sky above, with endless miles in which to wander.

Not an Indian who was physically able to ride but longed for this trip to the mesa. Only our policemen and the few persons needed to care for the sick and the aged stayed on through the winter.

It was a strange procession that finally departed up the trail. A single file of horses so encumbered by household equipment, clothing and food—all topped by a member of the family—that it looked like a train of bundles, walking off on four feet.

And what mysteries those bundles contained!

Near the village that fall I had watched a young woman glean 222
the ripe fruit from a sprawling bed of prickly pear cacti by catch- 262
ing the fruit between two gathering sticks, and with a quick twist break it free. After removing the spines by swishing the pear with a fiber brush, she tossed the clean pear into the burden basket on her back. At home any remaining spines would be wiped off [251]
before the fruit was split and laid in the sun to dry. She had approached her task fully prepared with gathering sticks, brush and burden basket. Tied in those huge bundles that obscured their ponies, I knew, were the crude, homemade tools they would use in gathering the many edible wild plants that grew up above.

The pigweed on the mesa should be a luscious bush loaded with small rich seeds. Its leaves, boiled, were eaten as a vegetable; the ripe seeds were toasted, ground and cooked into a mush. Mormon tea would be gathered, dried and stored to be brewed in a refreshing drink. The dry pods of the mesquite were sweet and nourishing; they were chewed for their food value or, reduced to a powder and mixed with water, used as a drink. Fall ripened the fruit of the yucca, which was an important food. After frost, the Indians

Bailiff T-S (ca. 1961) 1964 NT14 Pinyon Tunnam NT14
Havasupai

would comb the desert for the pinon nuts, oily and pungent, as they fell from the pine trees. The desert, which yielded its store of food to those who knew where to search for it, was ripe for the harvest.

Each day one or more groups climbed the trail, bound for Seligman to loaf about the trader's store, or for the pueblos of the Hopi or the scattered villages of the Walapai. They would denude the plateau of its food plants as they traveled. Laughing, shouting back merry good-bys to us, they climbed the trail. The canyon seemed full of empty houses.

From their talk I gathered a clear picture of their life on the upper level. They would kill an occasional deer or mountain sheep, if no white man were about; even without these there would be meat, for rabbits were plentiful. They satisfied their need for sweets by robbing bees' nests hidden in clefts in walls or in hollow trees. Long ago they had found a cave in a distant cliff that contained more rock salt than they could use. So with vegetables, meat, salt and honey in addition to the supplies they took with them, their needs would be satisfied.

When harsh winter set in, they would retire to their small, tight winter houses in the cedar thickets and live off their stored foods. One of the most delicious of these was the corn that had been roasted in the husk, while fresh and green, dried somewhat and stored. They would cook the ears in boiling water and the grains would have the sweetness of fresh corn.

Those who had not bothered to bring cooking pots, drew on the desert's reserve by burning the spines from a section of barrel cactus, removing the center pulp, and using the cavity for the old-time method of stone boiling. Accustomed to making the most of the things at hand in the desert, on the mountains, or wherever they might be, the women cooked mush and boiled vegetables or meat in this unique container, giving no thought to the hardship involved.

Melting snows and swelling buds would start the wanderers leisurely homeward, pausing on the way to reap a rich harvest

LSUMF T-5 (ca. 1961) 1964 NT14 Plateau Tumans NT14
Havasupai

from the agave, commonly called the mescal plant. Families worked in groups, first testing the plants for ripeness by thrusting a sharpened stick into their hearts. If they were soft and juicy, the harvest was on. With a wooden wedge the women pried the entire plant from the soil, cut away the outer leaves and tossed the fibrous pulp into their burden baskets. A large pit was dug, wood put in, set on fire and covered with stones. Someone accustomed to the task piled the hearts into the heated pit, using a cross layer to separate the mescal belonging to one family from that of another. These tasks were performed with high good humor. When the pit was filled to a depth of four or five feet, the mescal was covered with a layer of grass and leaves, on which dirt was piled to hold the heat. At the end of two days, the hearts were soft and brown. Each woman took her share, spread it on a wide stone surface, and pounded it into a thin sheet three feet wide and twice as long. This was quickly dried in the hot sun, then folded into a slab for convenient storing.

The mescal pit yielded the brown paint about which Carl had told me at Truxton. The stones on which the plants rested in the roasting pit were heavily coated with the burned juice. This was either scraped from the stones or soaked in water which was later evaporated by boiling. When the right consistency was reached, red mineral paint was added to thicken it to a putty-like substance of the desired shade for facial decoration.

My successor finally arrived. He was young, friendly, quick to co-operate, and his wife was charming. They were a bit shaken from the descent of the trail, and appalled at finding themselves in so deep a gorge, but quickly made their adjustment, and were eager to begin work. I remained for a few days to help them get acquainted with conditions and to check the government property, which I would turn over to him.

Again I fitted my things into the clumsy packsaddles, this time for the trip out. As I packed, the remark made by an Indian lad to a lazy boy who refused to work, ran through my mind: "Well, what are you going to do—just stand there and breathe?" With

The Economy, Old and New

The Precontact Pattern

Before pressures of the white culture were felt, the Havasupai wintered on the plateau. Men, singly or in small groups, went there on summer hunting trips. Whiting (n. d., 61) suggests that the Havasupai "conceive of their agriculture as something incidental, a supplement to a nonagricultural way of life." Whiting points out that even today, when farming is virtually their only resource, Havasupai do not take pride in their fields as Pueblo farmers do, regarding the land rather as a confining element which restricts their freedom. He states further (p. 53) that, in the prehistoric economy, neither agricultural produce nor the wild food supply was available in sufficient quantity to sustain the population, and that it was essential for each family to supplement hunting and gathering activities by farming. This view evokes the question of how the neighboring Walapai survived in a similar environment with virtually no farming.

Whiting's thesis is in contradition to Spier's that the Havasupai are so largely agriculturists that the "loss of a crop may mean a famine year" (Spier 1928, 101). Wild food plants were primarily a winter supplement to field products. Spier notes further (p. 102) that hunting is "a man's second occupation, for he relies mainly on his field products."

Perhaps the difference Whiting discerns between Pueblo and Havasupai attitudes toward farming is in part a result of natural environment. Certainly, Pueblo farmers must pit their ingenuity against desert aridity to win a harvest, while a seed dropped in a Cataract Canyon field will grow with only occasional attention from the farmer.

When adverse conditions brought Havasupai subsistence to a dangerously low level, as occasionally happened, some families would go to live with friends or relatives among the Hopi and Walapai. In turn, the Havasupai were hosts to families from both these tribes in years of bountiful harvest.

Spier (1928, 99-100) reported that the Havasupai journeyed from the plateau to the canyon in early spring, planting activities beginning in mid-April. In summer, everyone, except those who were away on trading trips, lived in the canyon village. Corn ripened for use by the middle of *June*, and the harvest continued until September, when other domestic crops and wild plant foods were also harvested and prepared for winter storage. By the middle of October, family groups were drifting back to semipermanent winter camps on the plateau.

When families were camped in Cataract Canyon, women made frequent gathering trips to the Esplanade. A number of springs there served as focal points for camps of certain families. Ownership of the various springs was vested in specific individuals, and both the springs and the surrounding land

434 in their absence. Significance may be found in their having solved their economic problems on an individual basis by voluntary resettlement off the reservation with a regular income.

221 461 178 From the original Havasupai annual migration cycle, with its combined hunting, gathering, and farming economy, transition to the present patchwork pattern of farming, labor-for-wage employment, and partial or complete government dependency, occurring over the last 80 year period, has produced an unevenness in adaptation of individuals within the tribe.

221 178 For many years following establishment of a subagency in Supai, certain families persisted in following the traditional pattern of winter plateau residence. Depletion of wild food plant resources and enforcement of laws restricting the hunting of larger game to a prescribed autumn hunting season probably did more than Indian Service persuasion to induce an increasing number of families to winter in the canyon. By 1950, only one old couple continued to winter regularly on the plateau. This couple, alone or with several of their adult children and their families, was absent from Supai only about four months.

●[222] Maturity of the pinyon nut crop on the plateau occasions the only mass exodus of families from the canyon at the present time. For three or four weeks the pinyon forest is alive with family groups reaping the harvest and enjoying a sort of nostalgic holiday. Following the pinyon harvest, families drift back to Supai, a few of them detouring to visit at Grand Canyon or on the Walapai reservation.

729 There was speculation among interested Indian Service personnel that the 11 Havasupai World War II veterans would not settle in Supai after their horizons had been broadened by Army training and experience which included overseas service for some of them. However, 10 of them returned to their families in the canyon and to their prewar residence and employment patterns.

657 In 1951, on the recommendation of an extension agent who had surveyed the economic situation of the Havasupai Indians for the Office of Indian Affairs, Havasupai families became eligible for resettlement on the Colorado River Irrigation Project near Parker, Arizona. This program, originally designed for Navaho and Hopi resettlement, allotted to each family 40 acres of farm land with an option to lease an additional 30 acres (Kelly 1953, 80). Later, old army barracks were made available for housing. Three of the younger Havasupai men settled on these land allotments, but two of them returned to Supai. Other men who were contacted individually by the resident agent simply could not be persuaded to consider moving away from Supai.

311 The land shortage is, of course, acute on the Havasupai reservation. It was estimated in 1950 that each family camp unit was farming about three or four acres. In 1955 a government soil scientist estimated that the

Among those tasks commonly allotted to women, child care and cooking were the two which occupied most of her waking hours. While child care was primarily a feminine responsibility, men shared or assisted in it when they were at home, as previously described. Cooking, on the other hand, usually was not a regular occupation of a man even on a part-time basis, except for those men who lived alone or had no woman in the household. However, if an old couple lived alone and the man were the more robust of the two, he did the cooking or assisted with it. Whenever the wife was absent or indisposed for a brief interval, it was not beneath her husband's dignity to cook, although he might choose to eat with a relative if his dependents were not too numerous. 462

Women gathered wild plant foods within a short radius of camp, but trips of longer duration or greater distance were usually undertaken in company with their husbands who shared in the work. Gathering the pinyon harvest was a family project in which everyone worked and groups of families camped close together, making it a gala outing lasting two or three weeks. Each family moved from place to place until they judged their harvest adequate for their needs. [222] [476]

After the harvest of pinyons and other wild plants in which men helped, it was women's work to roast, husk, grind, and otherwise prepare the food for immediate use or storage. Likewise, women prepared for storage all foods harvested from the fields. Spier (personal communication, 1937) adds that men might also prepare food for storage, especially if they had no women to do it. [251]

Pottery was made by women, but its use was abandoned so long ago that the oldest living tribal members probably saw its manufacture only in early childhood if at all, and only a scant description could be obtained from informants. Location of clay deposits is still common knowledge, however, and one man pulled a sample of powder-smooth texture and almost white color from under the eaves of his house where it had been used for chinking. Clay deposits still exist in Cataract Canyon, notably near Navaho Falls and near the mouth of Ash Canyon, a tributary. Other clay deposits used are located on the plateau near Pine Spring and elsewhere. Clay was excavated either by women or men. [323] [317]

Basket weaving was exclusively woman's province, but basketry materials were sometimes gathered by men. [285]

The Havasupai did no beadwork or embroidery in early days. Twenty or 30 years ago several girls learned to do beadwork while in school at Fort Mohave, but few if any of them have used the technique in recent years. [306] [871]

Construction of houses and brush shelters used in summer is a family affair, and occasionally most of the community will join in building a house [342] [476]

252a few are given here. Green corn is usually shelled or cut from the cob and mashed to a pulp on the grinding stone. Water is heated to almost boiling, the corn slowly added, and the mixture stirred with a stick while the pot remains on the fire. When it comes to a boil, it is set aside to cool. Green corn in the husks is roasted on a bed of coals or buried in hot ashes until the outer husks are charred. The husks are then pulled back and the ears tied in pairs by their husks and hung up until some relatives or friends come calling. The usual way of eating corn on the ear is to break off the kernels with the thumb nail, catching them in the palm of the same hand. A handful is poured into the mouth at a time. Often the pulp of green corn is shaped into balls, wrapped in husks, and baked in hot embers. When the husks are removed the balls are eaten as bread. Green corn is sometimes cut from the cob, crushed, and boiled with unripe pumpkin cut in small pieces. A favorite sweet dish is made by boiling squash blossoms until tender, then mashing them to a pulp on the grinding stones. Meanwhile green corn, cut from the cob, is cooking in a pot over a slow fire. The pulp is added to the corn and boiled until thick.

241 Squash does not ripen until October. It is gathered in burden bas-
251 kets, brought home and piled up. Later the rind is cut off and the seeds and center pulp scraped out. The flesh is cut out in strips and hung in the sun to dry. While still pliable it is made into bundles and dried thoroughly before it is stored for winter use. Squash prepared in this manner will keep indefinitely.

Fruit raised by the Havasupai is well known for its fine flavor. The women halve the ripe peaches and lay them out on the roofs or rocks to sun dry and then store them away for winter use. Figs are also dried. Some of the fruit is ground on the *metate*, pressed into large cakes and packed away.

251 Much of the beef and game is roasted and boiled while fresh, but
252 often it is dried to preserve it. The meat is cut in long thin strips and hung in the sun to dry. It is generally necessary to pound this jerky with a pestle before it is cooked and then it is commonly stewed with dried squash or corn. Bean flour also may be added to thicken the stew.

233 In addition to the cultivated crops, the Havasupai gather several
242 wild plants which are a valuable adjunct to the food supply during the winter residence on the plateau. The pinon nut forms an important part of their diet. In good years these nuts are gathered in large quantities during the fall and winter months by the women and children on the land high above the canyon. Some of the nuts are ground
252 on the *metate* into a paste resembling peanut butter.

A drink is made of dried mesquite pods. The pods are crushed on
272 the grinding slab, stirred into water, and the mixture allowed to stand several hours, after which the drink is ready for use. A variety of
232 seeds—pigweed, goosefoot, and numerous others, are gathered and
252 utilized in various ways. Some are roasted on parching trays and ground and the meal added to boiling water and made into mush. Pigweed leaves are boiled in salted water and eaten like spinach; sometimes corn meal is added.

232 The mescal (the agave plant) is considered at the right stage for eating when the flower stalk, which shoots out from the center of the plant, is a few inches high. The plant is severed by pounding a chisel-shaped buckthorn stick or stone axe against its base. The outer leaves of the inverted plant are trimmed of their green portion with a hatchet or butcher knife. A party of several families goes out and gathers
252 mescal and brings it to the place where it is to be cooked. A pit which may vary in size but usually is about three feet in diameter and one and a half feet deep is dug in sandy soil, not in gravel because the steam would escape. Wood and brush are piled into the hollow to the height of a foot or more above the ground. Stones the size of a man's

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flat are spread over this to a depth of about five inches. A fi
built and allowed to burn until the wood is nearly consumed
stones are red hot. Several men pound on the pile to reduce it
ten inches below the surface of the ground. The women have
cal piled around the pit conveniently at hand. The pit is d
sections among several families; when the mescal is put in
plants are placed on edge to mark these divisions; the ch
packed in between. The mescal is covered with grass, ca
gunny sacks—and over the top a layer of wet sand is thrown
eight hours is the usual time required for roasting mescal.
ally some of it is dried and ground into a meal from whic
dishes are prepared.

The fruit of the prickly pear cactus ripens in September
gathered in great quantities. The fruit is broken off with ton
in the sand with a brush of twigs, and finally rubbed with a
cloth to remove the spines completely. Basketsful are carri
the fruits opened and spread on arrow-weed mats to dry in th

The fruit of the yucca ripens in September and is found
dance on the land above the canyon. A layer of this is arra
bed of dry sticks, about three feet in diameter. The sticks
until the rind of the fruit is burned black, then it is remove
into a pile, and sprinkled with water. The burned rind is
and the seeds separated from the pulp. The pulp is spread to
layer of grass or Mormon Tea sprigs. The dried yucca sheet
and stored. Pieces are broken off and eaten dry or they may

The Havasupai women take pride in their hair, washing
in a yucca suds—a soap substitute made from the roots of the
leaved yucca pounded into a pulpy mass and dried. After b
washed, the hair is soft and glossy.

The Havasupai house *(kawa)* cannot be classed as either
or *kapas*. Some are built of willow brush, conical shaped like
others are constructed like a tent with horizontal ridge pole
and a few are built with straight brush walls and a flat roof
with dirt and thatch. Floors are of dirt and are not tramped
way. The loose sand and trash that accumulates is swept
the center of the house against the walls and after a time the
appears to cover a slight depression. Saddles, hides, and
sessions are pushed into corners. Many of the belongings
in paper cartons and log boxes. The cooking is done on a
ing stove or open fireplace in the middle of the floor, the smoke
ing through a hole in the roof. Living in their remote can
everything has to be packed in on horses over a steep winding
Havasupai have few modern household goods.

At night, blankets or small thin mattresses are spread
ground to provide beds. In the morning, all the bedding is
a cowboy's bed roll and piled along the wall. A few family
modern beds, but the ground is generally used. Beds are usual
with the head to the east; in this position the sleeper will
from troublesome dreams, will rest well, and arise refreshed

Some years ago the government built for the Havasupai
of two-room frame cottages, but the Havasupai would not
their old ways. They stored their farm tools, melons, squash,
supplies in the frame houses and continued to live in thatch
close by. Today most of these houses are occupied by the
least a part of the year, but some claim the government bu
are too hot in summer and too cold in winter.

The construction of these houses probably has had somethin
with the diminishing custom of storing surplus food supplies
in the rock high up on the canyon wall. In olden times each f
its own storage chamber which was sealed up with rocks

plaster. Marks were made on each seal so that the owner could readily identify it. These high storage chambers always kept the Indians' food supply safe from the floods that rushed down the canyon at times. The summer climate in Cataract Canyon is very hot. The rock walls absorb the heat of the sun during the day and only a part of this stored heat is radiated during the night.

Most of the tribe live much of the time out-of-doors. The cooking is done over an open fire and the other household work is performed under trees and brush shelters. In winter the sun lingers only six or seven hours between the cliffs, imparting but little heat, and the nights and mornings are very cold. Because of this and lack of fuel, most of the tribe leave the canyon during the winter months and live on the plateau around the head of Topocobya Trail on the east. Here there is plenty of pine wood for fuel and good grazing for the horses. On the plateau, the house is a sort of hogan of logs and earth, more solid in construction than in the canyon.

In the summer most of the cooking is done out-of-doors and the meals are served there also. The cooking pots and pans, baskets of fruit, trays of bread, water bottles, and coffee pot are placed together on the ground. A large vessel containing ground rock salt always stands nearby, but very little is used, and practically none at all in the process of preparing food. The family groups itself about these, sitting on the ground or on boxes within easy reach of the main dish of the meal. Sometimes plates and spoons are used, but usually pieces of meat and vegetables are fished from the stews with the fingers, twigs, or knives, while mush is scooped up with chunks of bread. Generally the women and children eat with the men, but when they are visiting male relatives or friends they usually wait until the men are through.

Cooking utensils are of the simplest kind—cheap tin kettles, lard cans, and tin buckets. Some characteristic Indian utensils are still in use. A shallow basket woven of willow splints, lined with a coating which may be red clay, stewed peaches or other sticky substance, is used for roasting piñon nuts and corn. Hot coals are put in the baskets and shaken around until the nuts or corn are roasted.

The conical shoulder-hung basket is still in use for gathering vegetables and fruit. The *metate* stone for grinding wheat, corn, acorns, and piñon nuts is extensively used. The *metate* is a flat slab of hard stone (the *mano*) held in the hands. When not in use the *metate* is turned upside down with one edge resting on the *mano* to keep it off the ground. A brush made of mescal leaf fibre is used for cleaning the *metate*. Stone mortars, and pestles, are used for pounding dried meat, piñon nuts and corn, also.

The Havasupai have adopted the white man's mode of dress. The men wear overalls or corduroy trousers, blue cotton shirts, jumpers large cowboy hats, and boots or shoes. Their hair is cut short. The women wear long, wide-skirted dresses, which they make themselves, of calico and print in the brightest colors obtainable. Ten yards is the usual amount of material required to make a dress. The hair hangs down in long bangs over the forehead so it almost obscures the eyes. It is cut shoulder length in back. Their hair dressing is about the only thing distinctly Indian unless it is the brightly-colored handkerchief tied loosely about the shoulders. Shoes are of American manufacture, a high top, low heel lace shoe for the older women and oxfords for the girls and young women. Moccasins are sometimes worn by the older men and women. During the warm weather the women and children go barefoot around camp.

Formerly both men and women wore moccasins. The man's moccasin consisted of two pieces. The sole was made of the thickest part

an interest in things. Names are said to be given for some personal peculiarity or because of some occurrence. As a rule grandparents name the children and names are not family property, as is the case in some Indian tribes. Sometimes children are re-named when they reach maturity. It is common for men to be re-named in reference to their marriage, but women are not. Havasupai names are told to strangers without much hesitation. Names have no special emotional or religious significance.

When a girl reaches adolescence, stones are heated in a pit near her home, covered with dirt, and carpeted with brush, grass and leaves. A temporary brush shelter is built over the pit and the girl lays on the covered rocks for the next four days. Before this however, she is bathed in suds made from yucca roots, her body painted red and her face brown. During the four days she must eat and drink sparingly must not eat meat, and must use a stick to scratch herself. She must run to the east before sunrise on each of the four days. It is believed that girls who eat meat before the menses end will be barren.

Some of the old methods of training the young have disappeared, yet while children are young they are taught by precept. The father or parental grandfather is the proper guide and instructor for a boy. Success in hunting depends more on personal skill than on charms and careful instruction is given to the boy. Boys practice marksmanship on rabbits, quail, and other small game before they are taken on a deer hunt.

Small girls help their mothers with the household duties around the camp, accompany them to the fields to gather corn and vegetables, to the orchards to gather fruit, and assist with the care of smaller brothers and sisters. Mothers usually watch their adolescent daughters very closely and do not allow them to go about alone.

In summer after the crops are planted and again during the harvest the Havasupai have some leisure time in which to engage in their favorite pastimes. Men gather at the sweat lodges to gossip, or visit a neighbor and help him rub and stretch buckskin, play games of chance, race horses, tell stories, or plan a trip to the Hopi or Hualapai reservations to trade. Women gather at a neighbor's camp and weave baskets, prepare the material for basketry, or even shell corn. In midday the women and young men are usually at their gambling, and, at least during the summer, the older men are at the sweat lodge.

These lodges are dome-shaped structures about six-feet in diameter and four to five feet high, set over a circular pit a foot deep. The frame is covered with brush or thatch. The dirt floor is usally covered with grass or leaves, except for a space to the left of the entrance where the stones are placed. They are heated in a fire nearby and carried in with green wood tongs.

The sweat lodge serves as a sort of clubhouse for the men. During the hot midday it is customary for the men to rest, the sweating proving very refreshing. Some lodges are located on the banks of the creek; others some distance away. Several men may be found during the heat of the day, lying on the sand near the lodge, stripped to breech cloth, awaiting their turn to enter. Women occasionally accompany their husbands, but such are considered family affairs, especially when they take the children.

It is the custom for a man to go into the lodge four times during the afternoon. Usually four go in together, but the number is not fixed. The space would hardly accomodate more. The host or leader sits at the rear with a basin of water nearby. It is very dark inside and the heat is intense. Suddenly he bursts into a song; if the others wish they may join him. They stay from about ten minutes to an hour, and just before they emerge the leader sprinkles water on the rocks producing heavy steam. If the lodge is located on the banks of the creek,